

CHARLES RIVER WATERSHED STUDY  
RECREATION INTERIM MEMO #2  
RECREATIONAL BOATING DOWNSTREAM OF  
MOODY STREET DAM  
AND  
OTHER NAVIGATIONAL DATA

Prepared By  
Department of the Army  
New England Division, Corps of Engineers  
Waltham, Mass.

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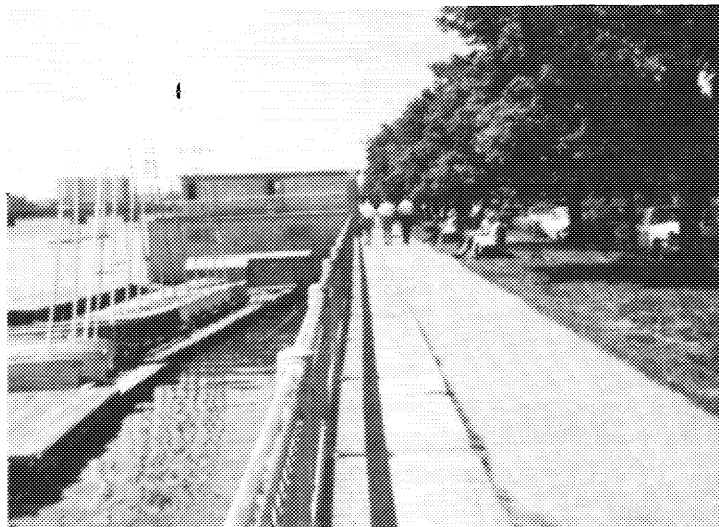
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Allston, Mass.  
Rowing



MIT Sailing Pavilion  
Cambridge, Mass.  
Sailing



Charles River Yacht Club  
Cambridge, Mass.  
Cruising

CHARLES RIVER WATERSHED STUDY  
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OF  
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1. Recreational boating in this section of the Charles River is confined entirely to the pool upstream of Charles River Dam, Boston to Galen Street, Watertown. The section of the river upstream of Galen Street to Moody Street, Waltham, is not suitable for boating on account of lack of public access; three dams in its 3.04 mile length; other stream obstructions; gross pollution; and its poor aesthetic character.

2. The reach of the river from Charles River Dam to Galen Street is 8.4 miles in length and constitutes a protected basin with superlative attractions for oarsmen, sailors and operators of power boats. According to a survey conducted in July 1967 by the Boston Redevelopment Authority, 803 pleasure boats are permanently berthed in this part of the river. Table I (BRA Inventory) lists the boating organizations and the various types of craft. Also, Map A indicates the locations of these facilities.

3. Table I relies on the Killam and Maguire report for the MDC for the 1959 data listed. The following trends were noted:

<u>Killam &amp; Maguire 1959</u>		<u>1967 Inventory</u>	<u>Change</u>
Number of Boats		Number of Boats	
Rowing	302	345	+14%
Sailboats	95	147	+55%
Power Boats	398	311	-28%

4. Corps' Table II is a record of the use of the locks and drawbridge at Charles River Dam from 1940 - 1966 inclusive. The data for the period 1940-1958 inclusive is derived from Killam and Maguire, and the data for the balance through 1966 was obtained from the logs of boat passages maintained by the MDC at the Charles River Dam locks.

The most striking changes noted are the decrease of commercial vessels using the locks in the period 1950 - 1966, and the increased use of the locks by pleasure boats in the period 1954 - 1966.

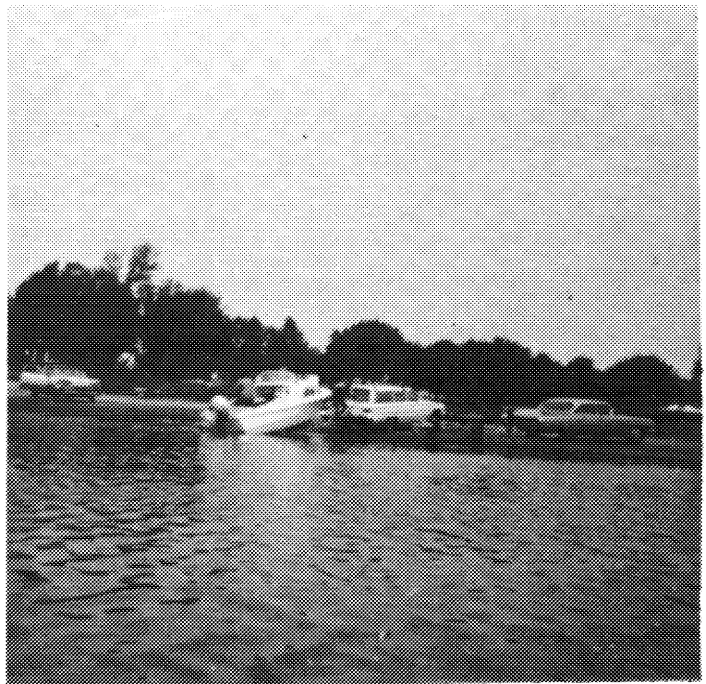
Commercial Vessels	<u>1950</u>	<u>1966</u>	<u>Change</u>
	3,089	807	-380%
Pleasure Boats	<u>1954</u>	<u>1966</u>	<u>Change</u>
	7,949	14,130	+80%

5. In 1959, Killam and Maguire estimated that 44% of all pleasure boats passing through the locks were outboards. In the summer of 1967, two methods were used to obtain similar information for the purpose of comparison. These consisted of counting the outboards going through the locks during the period 14 August to 4 September, Labor Day, inclusive; and spot checks of the two public launching areas. The MDC provided the



## OUTBOARDS

New 100 Outboard Boat Launching Area  
at the MDC Nonantum Road Area, Newton, Mass.



Extensive MDC Launching Ramp - 500 Feet Long  
at Magazine Beach, Cambridge, Mass.

data contained in Table III. The period of study included three week-ends in August and Labor Day week-end. Weather was poor during the first two week-ends, a condition which would tend to discourage users of the smaller outboards, and have less effect on the use of the larger inboard craft. BRA Table I lists a total of seventy outboard boats permanently based in the lower river. All are listed under the Newton and Watertown Yacht Clubs. Many of these are used as auxiliary craft to the larger boats and probably do not ordinarily leave their home berthing areas. The following outboard counts at the locks have a bearing on the number launched at Nonantum Road and Magazine Beach:

<u>Date</u>		
19 August	108 Outboards	54 Round trips
20 August	131 Outboards	65 Round trips
27 August	138 Outboards	69 Round trips
4 September	191 Outboards	95 Round trips

Checks have been made at the launching sites and MDC has provided some information. However, no hard facts are yet available on the impact of visiting outboards. A system of counts at the launching area should be planned for the 1968 season.

6. Corps' Table IV is a partial analysis of participation in recreational boating programs in the Charles River lower basin. This data was obtained by interview with crew coaches, sailing masters and other officials in the various boating organizations. The estimates under man-hours are not conclusive, but are rather indicative. However, the numbers of participants and the seasons shown under the column "No. of Days", appear to be reliable figures. Whereas BRA shows numbers of peak-hour users, this table represents an attempt to reflect total annual use.

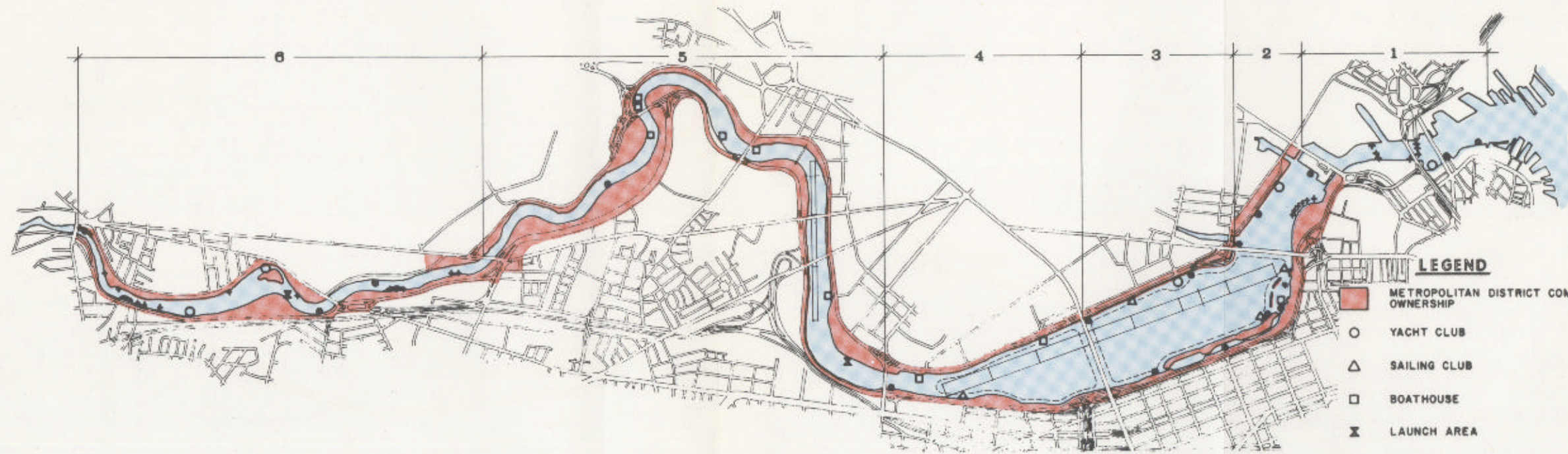
#### 7. Traffic and Navigational Problems

The attached Map A indicates the sites of recreational boating facilities and zones of the lower river used for specific purposes.

Sailing is mostly confined to the 234 acres of water surface between Longfellow and Harvard Bridges. The arches under the latter are too low to admit the passage of sailboats unless their masts are stepped, and practically all sailing activity takes place in this area. Approximately 150 sailboats are based here.

Crew race courses generally run from the vicinity of the Boston University Bridge to a finish line near the eastern embankment area. However, the various university, school and rowing club oarsmen utilize most of this 8.4-mile section of river for practice, although time trials are conducted over the race course.





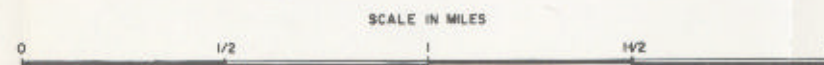
#### LEGEND

- METROPOLITAN DISTRICT COMMISSION OWNERSHIP
- YACHT CLUB
- SAILING CLUB
- BOATHOUSE
- LAUNCH AREA
- PUBLIC LANDING
- PUBLIC LANDING & EXCURSION BOAT STOP
- SAILING LIMITS
- ROWING RACECOURSE
- FIXED OBSTRUCTION

### CHARLES RIVER STUDY CHARLES RIVER LOWER BASIN EXISTING WATER RECREATION

DEPARTMENT OF THE ARMY  
NEW ENGLAND DIVISION, CORPS OF ENGINEERS  
WALTHAM, MASS.

This Map Courtesy Boston Redevelopment Authority  
And Adopted By The  
U. S. Army Corps Of Engineers  
Waltham, Mass.



Traffic problems and conflicts are inevitable. A crew time trial may be disrupted by the wash of even a small outboard. Shells, one-man sculls, kayaks and sailboats are vulnerable to the washes created by power boats. This problem is aggravated by the location of two yacht clubs in Newton and Watertown, approximately eight miles above the Dam. Since many of the larger power boats cruise outside of the lower basin, they must traverse its length through areas where many sailboats and rowing craft are active. The addition of visiting outboard boats from one area way upstream, and another about 4 miles above the dam adds to the problem. In addition, many of the visitor outboards operate in ignorance of the local zones or areas designated for sailing and rowing.

The BRA has suggested relocation of some of the boating facilities, and the consolidation of rowing, sailing and yachting facilities, predicated partly on the construction of a new dam and locks at Warren Avenue. In BRA Table V, the capacities of the various water areas have been estimated. The proposed Warren Avenue Dam would make available a small basin below Charles River Dam in which marina and launching facilities could be installed.

It seems clear that traffic problems in the existing lower river will continue to grow, as increasing numbers of boats utilize this rather limited water area. The MDC in 1964 initiated a number of meetings of



Newton Yacht Club, Newton, Mass.

The Boats in these two Yacht Clubs must travel eight miles to the locks before entering Boston Harbor, Coastal Waters or Open Sea



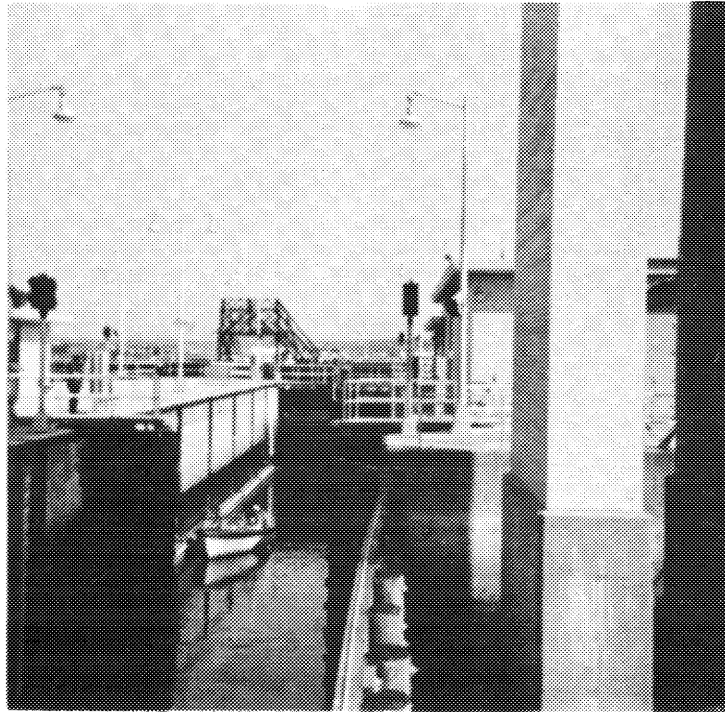
Watertown Yacht Club, Watertown, Mass.

representatives of recreational boating interests to create a forum of river users to help guide the development of a long-range plan for boating in the lower Charles River. This study group included representatives of state and local agencies, and a report was written under the title of "Charles River Study Committee Report". The present seems a logical time to reactivate this Committee. Major public works projects are imminent in the lower basin. The Inner Belt Highway, the proposed Warren Avenue Dam, and projects proposed by the Boston Redevelopment Authority, will affect this area directly.

Pollution and floating debris are real every-day facts of life in the lower Charles. Two sailing activities have reported that heavy oil residues often cover sailboats' hulls which occasion periodic cleanings. The odor of sewage is also noticeable in many areas. At least two sewage outflows were observed in the Watertown area. Oarsmen have experienced infected blisters through contact with the water.

Floating debris is another hazard. Heavy planks, logs and other assorted pieces of lumber are seen everywhere. Damage to the hulls of shells and sculls, and to propellers is caused by this flotsam and jetsam. In addition, submerged river junk causes damage. Due to the opaque condition of the heavily contaminated water, it is almost impossible to see submerged obstructions before running afoul of them.

8. In spite of these various problems, the lower end of the Charles River provides remarkable opportunities to enjoy rowing, sailing and cruising in the heart of the city.



Modern Pleasure Boat Lock  
Amelia Earhart Dam, Mystic River



TABLE I  
CHARLES RIVER BASIN AND JAMAICA POND BOATING

NAME AND LOCATION OF FACILITY	BOAT TYPES	NO. OF BOATS		NO. OF BOATS IN PEAK-HOUR USE		NO. OF PEAK- HOUR USERS		PRINCIPAL AREA OF USE
		1959	1967	1959	1967	1959	1967	
<u>Boat Houses</u>								
Belmont Hill School boat house Gerry's Landing Cambridge	Sculls Lightweight Shells Launches	1 7 2	1 17 4	5	9	22	44	Boston University Bridge to Arsenal Street Bridge
Browne & Nichols School boat house Gerry's Landing Cambridge	Lightweight Shells Launches	11 3	8 5	8	10	46	60	Harvard bridge to Arsenal Street Bridge
Cambridge Boat Club Gerry's Landing Cambridge	Sculls Launches	26	22	6	12	6	12	Charles River Dam to Watertown
Harvard Rowing Newell Boathouse Brighton	Heavyweight Shells Launches	56 5	26 6	20	12	185	112	Boston University Bridge to Arsenal Street Bridge
Weld Boathouse Memorial Drive by Larz Anderson Bridge	Sculls Heavyweight Shells Launches	60 1	66 15 1	50	50	180	180	Boston University Bridge to Arsenal Street Bridge
Riverside Boat Club 769 Memorial Drive Cambridge	Sculls Lightweight Shells Launches	48 1	29 2 1	15	20	24	30	Boston University Bridge to Arsenal Street Bridge
Northeastern Rowing Riverside Boat Club 769 Memorial Drive Cambridge	Sculls Lightweight Shells Heavyweight Shells Launches		6 1 8 3		6		55	Spring: Lower basin Fall: Upper basin
Boston University Rowing Old M.I.T. Boathouse Cambridge	Lightweight Shells Heavyweight Shells Launches	8 2	1 9 3	6	6	40	40	Charles River Dam to Arsenal Street Bridge
M.I.T. Rowing Pierce Boathouse 409 Memorial Drive Cambridge	Sculls Lightweight Shells Heavyweight Shells Launches	5 1 14 3	11 3 21 3	13	22	90	150	Charles River Dam to Watertown Dam

TABLE I (continued)

NAME AND LOCATION OF FACILITY	BOAT TYPES	NO. OF BOATS		NO. OF BOATS IN PEAK-HOUR USE		NO. OF PEAK- HOUR USERS		PRINCIPAL AREA OF USE
		1959	1967	1959	1967	1959	1967	
<u>Boat Houses (Cont'd)</u>								
Union Boat Club 75 Embankment Road Boston	Sculls Lightweight Shells Heavyweight Shells Launches	57 5 3 1	53 5 4 2	15	20	40	50	From Union Boat Club to Weld Boathouse
Boathouse Jamaica Pond	Rowboats Sailboats	22	22 8 (Juniors in summer only)	22	22 8	50	50 15	Entire Pond
<u>Sailing Pavilions</u>								
Boston University Sailing Club B.U. float (downstream from B.U. Boat House)	Sailboats Launches	8 1	9 1	6	7	18	21	Harvard Bridge to Boston University Bridge
M.I.T. Nautical Association Memorial Drive Cambridge	Sailboats Launches	52 1	49 2	27	26	54	52	Longfellow Bridge to Harvard Bridge
Boston College Sailing Club M.I.T. Pavilion Memorial Drive Cambridge	Uses M.I.T. facilities - Active school year only. Membership varies: 15-40/year							
Harvard University Sailing Club M.I.T. Sailing Pavilion Memorial Drive Cambridge	Sailboats Launches		21 1		21		30	Longfellow Bridge to Harvard Bridge
Emerson College Sailing Club Float upstream from Union Boat Club	Sailboats Rowboats Launches		2 1		8		22	Longfellow Bridge to Harvard Bridge
Community Boating, Inc. 21 Embankment Road Boston	Sailboats Rowboats Launches	35 4 1	51 4 2	35	55	100	150	Longfellow Bridge to Harvard Bridge
<u>Yacht Clubs</u>								
Newton Yacht Club Nonantum Road	Power boats Outboards Sailboats Rowboats	140	50 50 2 12	100	80	150	240	Harbor and coast

TABLE I (continued)

NAME AND LOCATION OF FACILITY	BOAT TYPES	NO. OF BOATS		NO. OF BOATS IN PEAK-HOUR USE		NO. OF PEAK- HOUR USERS		PRINCIPAL AREA OF USE
		1959	1967	1959	1967	1959	1967	
<u>Yacht Clubs (Cont'd)</u>								
Watertown Yacht Club North Beacon Street Watertown	Power boats Outboards Sailboats Rowboats	33	50 20 3 25	40	35	160	240	Harbor and coast
Charles River Yacht Club Memorial Drive Cambridge	Power boats No launch (each boat with dinghy)	35	45	78	40	300	160	Harbor and coast
Charlesgate Yacht Club Cambridge Parkway Cambridge	Power boats	49	40	50	45	200	180	Boston Harbor, coastal waters
<u>Launching Areas</u>								
Nonantum Road Launching Area Nonantum Road Brighton	Outboards	-	*	-	*	-	*	Boston Harbor
Magazine Beach Launching Area Memorial Drive Cambridge	Outboards	-	*	-	*	-	*	Boston Harbor
* Figures not available; figures for Charles River Dam small boat lock passages averaged 14,000 annually 1960-1966.								
<u>Totals, by type, Charles River</u>								
Rowing (all types)		302	345	138	171	633	733	
Sailboats		95	147	58	113	172	275	
Powerboats (all types)		398	311	92	144	368	175	
<u>Totals, by type, Jamaica Pond</u>								
Rowing		22	22	22	22	50	50	
Sailing		0	8	0	8	0	16	



TABLE I (continued)

NAME AND LOCATION OF FACILITY	BOAT TYPES	NO. OF BOATS		NO. OF BOATS IN PEAK-HOUR USE		NO. OF PEAK- HOUR USERS		PRINCIPAL AREA OF USE
		1959	1967	1959	1967	1959	1967	
<u>Totals by Area</u>								
1		0	0	0	0	0	0	New Basin
2		68	60	8	5	20	20	Charles River Dam to Longfellow Bridge
3		241	249	161	173	206	316	Longfellow Bridge to Harvard Bridge
4		42	61	31	38	160	223	Harvard Bridge to Cottage Farm Bridge
5		221	221	116	125	487	517	Cottage Farm Bridge to Arsenal Street Bridge
6		223	212	6	3	12	12	Arsenal Street Bridge to Watertown Dam
7		22	30	22	30	50	66	Jamaica Pond

TABLE II

CHARLES RIVER DAM, BOSTON  
RECORDS OF LOCKS USE AND BOATS

Sources: (1) Killam and Maguire Progress Report  
No. 5, Dec. 1959 -- for years 1940-1958  
(2) MDC Logs for Years 1959-1966 Incl.

<u>Year</u>	<u>Drawbridge Openings</u>	<u>Lock Openings</u>	<u>Number Vessels*</u>	<u>Number Small Boats**</u>	<u>Other Craft</u>
1940	2,207	4,609	2,290	9,037	
1941	1,998	4,128	1,954	8,218	
1942	953	1,362	938	1,387	
1943	376	511	413	364	
1944	395	609	411	458	
1945	1,030	1,843	837	2,633	
1946	1,959	3,695	1,995	5,933	
1947	2,341	3,837	2,749	6,959	
1948	2,370	3,919	2,757	6,482	
1949	2,066	3,776	2,390	6,568	
1950	2,545	4,227	3,089	5,500	
1951	2,822	4,403	3,426	5,719	
1952	2,283	4,218	2,465	6,291	
1953	2,113	4,114	2,405	5,795	
1954	1,921	4,238	1,877	7,949	
1955	2,122	4,743	1,780	10,106	
1956	2,049	5,296	2,205	10,546	
1957	2,264	5,740	2,083	14,434	
1958	2,132	5,113	2,324	12,019	
1959#	1,791	4,129	1,944	11,285	#Locks closed for repair 4/21- 6/27/59
1960	2,242	5,277	2,312	14,320	
1961	2,408	5,804	2,022	13,975	
1962	2,223	5,470	1,485	14,723	15 Sailboats
1963	1,731	5,536	1,177	14,425	
1964	845	5,464	850	13,298	
1965	851	5,926	845	14,361	
1966	855	5,645	807	14,130	26 Sailboats, 12 rowboats and 2 canoes

\*Commercial

\*\*Recreational

## TABLE II (cont'd)

### TRENDS NOTED:

#### Recreational Boat Passages

The nation-wide boom in recreational boating since the end of World War II is reflected in the use of the locks by pleasure boats. The number of such craft jumped from 5,933 in 1946 to a high of 14,723 in 1962, and a level of about 14,000 per year through 1966.

#### Commercial Vessel Passages

Except during War II years, the numbers of commercial vessels passing through the Charles River Lock have fluctuated in a range of 1950-2450 (with two years of 3,100 and 3,400) in the twenty-two years (1940-1961, and declined sharply 1964-1966 to the number of 850 - 800 commercial vessels logged by MDC. The recent sharp declines in numbers of commercial vessels through the Charles River Lock is related to commercial land use changes on the two canals in Cambridge, reached from the Basin and lock.

#### Drawbridge Openings

The MDC Leverett Street lift bridge, over the Charles River Dam navigation channel, was re-built Dec. 1962-June 1964 with a raise in grade and a 6.5 foot increase in net clearance above Charles River Basin design pool level. The former clearance had been 7.5 feet. The 86½% increase in water clearance contributed to the sharp reduction in numbers of drawbridge openings tabulated 1962, 1963, 1964.

TABLE III  
CORPS OF ENGINEERS

Recreation Boating

Outboards in Lower Charles River, Galen St. to Charles River Dam  
14 August to 5 September 1967

CHARLES RIVER DAM LOCKS AND DRAWBRIDGE - USE BY PLEASURE BOATS  
14 August - 5 September 1967

<u>Date</u>	<u>Motor Boats</u>	<u>Outboards</u>	<u>Lock Openings</u>	<u>Draws</u>	<u>Weather</u>
Mon. 14 Aug	8	26	27	-	Clear
Tue. 15 Aug	24	37	38	1	AM-Clear PM-Hazy
Wed. 16 Aug	38	38	48	6	Clear
Thu. 17 Aug	31	31	43	4	Clear
Fri. 18 Aug	18	50	49	2	AM-Clear PM-Hazy
Sat. 19 Aug	131	108	63	9	Hazy
Sun. 20 Aug	184	131	55	10	AM-Cloudy PM-Clear
Mon. 21 Aug	20	32	39	1	Clear
Tue. 22 Aug	26	29	42	1	Clear
Wed. 23 Aug	49	36	55	3	Mostly clear
Thu. 24 Aug	32	25	38	3	Clear
Fri. 25 Aug	20	17	37	1	Clear to 5PM Rain
Sat. 26 Aug	76	44	60	4	Rain & Fog
Sun. 27 Aug	153	138	59	5	Mostly Cloudy
Mon. 28 Aug	13	22	30	2	Clear
Tue. 29 Aug	37	36	57	10	Clear
Wed. 30 Aug	20	47	55	10	Clear & Rain
Thu. 31 Aug	12	17	20	1	Clear
Fri. 1 Sep	14	9	21	-	Clear
Sat. 2 Sep	84	39	55	2	Clear-Cool
Sun. 3 Sep	86	36	54	2	Clear-Cool
Mon. 4 Sep	213	191	51	5	Clear
TOTALS	1,289	1,140	994	81	

Percentage            53%            47%  
1957 \*                55.6%          44%  
\*Killam & Maguire Report No. 5, December 1959

TABLE IV  
CORPS OF ENGINEERS

A Partial Analysis of Participation in Recreational  
Boating Programs -- Charles River Lower Basin

1/-Spring Season; 2/-Summer Season; 3/-Fall Season

<u>Activity</u>	<u>Number Participants</u>	<u>No. Days</u>	<u>No. Hours Per Day</u>	<u>Annual Total of Man-Hours Participation</u>
<u>Rowing</u>				
Browne & Nichols School	80	50	5-3/4	15,000
Belmont Hill School	80-100	53	3-1/4	13,780-17,225
Harvard-Weld Boathouse	350	1/-78	9	27,300
Harvard-Weld Boathouse	125	2/-65	8	8,125
Harvard-Weld Boathouse	150-200	3/-65	7	9,750-13,000
Harvard - Newell Boathouse	100	1/-78	4-1/2	35,100
Harvard - Newell Boathouse	54	3/-50	4	11,800
M. I. T.	150	1/-78	2	23,400
M. I. T.	25-50	2/-26	8	650-1,300
M. I. T.	100	3/-78	5	7,800
Union Boat Club	70	210	---	15,000
TOTAL - 1,284-1,379				TOTAL - 167,705-175,050
<u>Sailing</u>				
M. I. T.	1,363	225		13,630
Boston College	30	225		300
Northeastern University	66	225		660
Community Boating, Inc.		1/-76	6	43,796
	8,400	2/-77	12	91,104
		3/-61	6	35,136
City of Boston Sailing Program	2,000	84		96,000
TOTAL 11,859				TOTAL 280,626

Power Boats - 1967 memberships in Watertown, Newton, Charles River and Charlesgate Yacht Clubs is listed at 295. No other data available.

TABLE V

CHARLES RIVER BASIN BOATING ZONES AND CAPACITIES

<u>ZONE</u>	<u>LIMITS</u>	<u>WATER AREA</u>
1	Warren Ave. Dam to Charles River Dam	46 acres
2	Charles River Dam to Longfellow Bridge	65 acres
3	Longfellow Bridge to Harvard Bridge	234 acres
4	Harvard Bridge to Cottage Farm Bridge	134 acres
5	Cottage Farm Bridge to Arsenal St. Bridge	154 acres
6	Arsenal St. Bridge to Watertown Bridge	<u>75</u> acres
		708 acres

TABLE V(cont'd)

CHARLES RIVER BASIN BOATING ZONES AND CAPACITIES

<u>Zone</u>	<u>1967 Boat Totals, Priority Types</u>	<u>Unused Boating Capacity*</u>	<u>Remarks</u>	<u>1967 Boat Totals All Types</u>	<u>Proposed Totals All Types</u>
1	-(PB)	300 Small boats	After improvements: 200 small boats pro- posed	---	200
2	60(PB)	190 Yachts	With relocated 100 boats from Newton and Water- town Yacht Clubs there will be room for 90 ad- ditional yachts	60	250
3	129(S)	----	Presently sailing at capacity	249	249
4	9(S)	65 Sailboats	70 Sailboat pavilion pro- posed at Deerfield, West of Charlesgate	61	122

\*Capacity calculated for:

Yachts: on basis of 10 yachts/acre berths and 25 acre allocated ship area

Sailboats: on basis of 129 sailboats in 234 acres water of Zone 3

Rowing: on basis of 200 boats (+20% increase following relocation of yachts and outboards)  
in 154 acres of Zone 5.

Small-boat Marina: on basis of 75 small boats/acre

TABLE V(cont'd)

CHARLES RIVER BASIN BOATING ZONES AND CAPACITIES

<u>Zone</u>	<u>1967 Boat Totals Priority Types</u>	<u>Unused Boating Capacity*</u>	<u>Remarks</u>	<u>1967 Boat Totals All Types</u>	<u>Proposed Totals All Types</u>
5	200(R)	40 Rowing	40-boat boathouse pro- posed at Sherborn, B. U. Shore	221	261
6	100(PB)	120 Rowing	3-40 boat boathouses pro- posed; relocation of yacht clubs	212	120
		<hr/> 715 Boats		<hr/> 803	<hr/> 1202